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AI Policy Challenges and the Indian Approach

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ANALYSIS

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This paper discusses the key and emerging challenges in the AI space. This discussion paper is based on interactions with domain experts and sectoral leaders during a week-long trip organised by the World Order and Globalisation Hub of the Friedrich Naumann Foundation for Freedom in North America, from February 22 to March 1, 2025, in Washington, D.C., and San Francisco, CA. The paper discusses the key points that emerged from the meetings in the first half. In the second half, these aspects are analysed in the Indian context.

1. Artificial Intelligence (AI): a tool rooted in an objective and balanced approach

To create Artificial Intelligence (AI) that people can trust, we need to rethink how autonomous systems interact with society and with other AIs, which differs from how humans and computers typically work together. Transparency and responsibility must be a top priority in governance frameworks and design architectures. This is especially true for engineers who work in non-traditional areas where incentives often conflict with moral obligations. These systems, which may act in ways that are not typical for humans (for example, risk-seeking algorithms that prioritise accuracy over caution), need to be carefully examined for biases that are built in, whether they are inherent in the design, the performance measures, or the way they balance different values. Trustworthiness depends on the reliability of the technology and the system's ability to handle moral uncertainty effectively. This is where philosophical problems arise: Should AI incorporate human biases from the past to reflect cultural contexts, or should it transcend them through neutral logic? Dual-use tensions make things even more complicated, so governance needs to focus on data stewardship instead of strict data hoarding. It is strange that making information more accessible to everyone has made expertise less valuable. National policies should encourage competition through open data ecosystems rather than hindering technological progress. To balance different priorities, such as safety versus innovation and problem-solving versus mitigation, it is essential to employ an interdisciplinary approach that incorporates philosophers, social scientists, and coders to understand the reinforcements, historical biases, and positioning, thereby ensuring neutrality and objectivity. To create AI that people can trust, we need to rethink how we evaluate values in system design and determine how to balance the need for independent efficiency with human-centred ethics. This is a balance that has been refined over hundreds of years in technical, legal, and cultural contexts.

1.1 AI and energy demand

The expansion and use of AI in all spheres of life demand the search for fresh energy sources to satisfy the rising energy consumption. AI is expected to consume between 6 and 12 per cent of all US-generated energy by 2030. Policymakers agree that additional investments are required to utilise and harness energy sources to meet the growing demand and increasing influence of AI in every aspect of life. Consequently, depending on the availability of resources like land and water, data centres, which are vital for AI operations, may be built anywhere in the world. Closed-loop cooling technologies are designed to enable these data centres to control their energy usage effectively. As such, industry leaders and legislators alike are giving data centre expansion and energy needs major attention. The energy need also sparks debates on how to maximise the possibilities of nuclear energy. Key elements of this development are simplifying the licensing processes and encouraging innovation. A good start in the right direction is the Nuclear Energy Innovation Act, which guarantees new transparency and accountability policies in the operations of the US Nuclear Regulatory Commission.

1.2 Technology diffusion and AI: negotiating the unstoppable

The relentless spread of technology presents society with both opportunities and challenges that require a strategic vision rather than futile containment efforts. Unlike nuclear technology, where proliferation might be somewhat regulated by limiting plutonium access, AI poses a fundamentally different regulating challenge—data, the core fuel of AI systems, travels freely across borders and digital networks. From healthcare and banking to self-driving cars and intelligent assistants, the field of AI is fast revolutionising sectors. Semiconductors are vital behind the scenes, driving this change. Different governments have handled the changing situation by passing several laws. By means of programs like the CHIPS and Science Act, the US government aims to limit China's hegemony of AI. The developed nations are vying with one another for

political power and dominance in the rapidly growing space of AI. There is also an issue regarding advanced cultures and how AI is essential in improving their quality of life compared to the underdeveloped economies of the rest of the world. International organisations, such as the World Bank, still focus on labour-intensive development projects as a tool to promote economic growth in underdeveloped areas. In this context, the question of how AI would improve rather than replace human labour arises—possibly allowing workers to become more productive by augmentation rather than automation, especially in sectors where human judgement and contextual understanding are still valued. Strategic foresight enables one to envision multiple possible paths. Societies that effectively utilise AI to complement human capacities

while implementing adaptive economic and social policies may flourish, whereas those that fail to foresee and adapt to these technological changes risk exacerbating

inequality and social unrest. It underscores the vital need for proactive governance frameworks that can evolve in tandem with technological advancements.

1.3 Fragmentation of Global Data Governance in the Era of AI

Although most AI applications are categorised as low-risk systems that could benefit from smaller regulatory approaches tailored to their actual potential for harm, the European Union's adoption of 37 new digital rules marks an unprecedented regulatory expansion that is changing the global technological landscape. Advanced AI systems blur these boundaries by their capacity to create personal insights from apparently anonymous information. The General Data Protection Regulation's (GDPR) outsized influence has become the gravitational centre of this regulatory framework, sending problematic signals to innovators by prioritising privacy and risk mitigation over innovation and economic growth, and simultaneously creating artificial and increasingly unsustainable divisions between personal and non-personal data in this era. These expanding rules are essentially generating divided digital markets with different compliance needs, which forces businesses to create region-specific goods and services that challenge the essentially worldwide character of digital innovation and data flows. With Europe stressing precaution, the United States pursuing a more sectoral approach, and China implementing data sovereignty policies creating a fragmented international landscape precisely when data sharing has become the lynchpin of scientific advancement, economic growth, and addressing global challenges like climate change and pandemic response, the critical question of whether global alignment of data laws remains possible grows more pressing. This regulatory divergence arrives at a particularly inopportune moment when the most promising innovations increasingly depend on cross-border data collaboration and interoperable systems, suggesting that without a more harmonised international approach to data governance that balances innovation with legitimate protections, we risk restricting the transforming potential of AI and other data-driven technologies precisely when their capabilities are becoming most profound.

1.4 AI and the cities

Rising as the main drivers of technological innovation, cities are dense networks of human capital, financial resources, and institutional expertise that provide rich ground for revolutionary advancements in AI and other advanced technologies. Many forward-looking municipalities have responded to this critical role by implementing formal "city chapter codes," or innovation frameworks that deliberately support technology development through targeted initiatives, including innovation districts, regulatory sandboxes, public-private partnerships, and specialised infrastructure investments meant to build startup ecosystems while ensuring technologies benefit all residents. California's adoption of 18 technology-related laws last year reflects the American approach to tech governance, which usually supports post-implementation control, allowing innovations to grow and show their effects before establishing limiting frameworks. With the American system giving market-driven solutions and adaptation top priority while the European approach emphasises precautionary principles and preventative guardrails, this stands in striking contrast to the European model, which has embraced pre-regulation through comprehensive frameworks like the EU AI Act, Digital Services Act, and GDPR—reflecting fundamentally different philosophical approaches to balancing innovation against possible harm. These various regulatory approaches will significantly impact which cities become major innovation hubs as global competition in AI development intensifies; the most successful cities will likely be those that strike the ideal balance between supporting public interests and facilitating technological progress.

2. India and Artificial Intelligence (AI)

According to the State of India's Digital Economy Report 2024, India is the third-largest digitalised country in the world in terms of economy-wide digitalisation, and 12th among the G20 countries in the level of digitalisation of individual users ([The State of India's Digital Economy Report 2024 - ICRIER](#)). India is also going through various challenges in the AI space. The fear of job loss with the emergence of AI compounds the discussion around regulations and moral ethics. AI becomes a force multiplier across industries; its ascent is as inevitable as its collateral damage: massive job losses that India is not prepared for. At the same time, how AI can be used to bring about substantial change in the lives of millions in a country of 1.4 billion is a case study for the rest of the world to watch. The larger debate has been the human-centric AI, ensuring innovation and global competitiveness. Creating an ecosystem of cutting-edge research and development (R&D) and an equipped and talented workforce for breakthrough technologies in AI will largely depend on the regulatory frameworks and institutionalised mechanisms that the country adopts and enhances in the coming years. It will improve India's global standing in this domain.

The government and the market have intensified their efforts in the AI domain to catch up with their peers. The Government's AI initiative is well-intentioned but at times fails to recognise the challenges and scale demanded, along with the funding and urgency required to create a conducive ecosystem. There is a lack of robust datasets at the local level in many sectors, which

hinders the growth of research and innovation in several critical areas of AI development. Although India's success with digital public infrastructure, such as UPI and Aadhaar, demonstrated a collaborative approach, a lack of clear and structured AI policy remains. In a landmark case, *Justice K.S. Puttaswamy vs. Union of India*, the Supreme Court of India in 2017 ruled that privacy is a fundamental right and a precondition for exercising Individual freedom. Access to data and privacy has thus become a very contentious and contested space in India. Like GDPR in Europe, India has enacted the Digital Personal Data Protection Act in 2023, but its enforcement is delayed due to the lack of notification of the detailed rules. This has caused immense worry and a slackening in AI innovation and practice. India has yet to formulate a national-level AI policy framework.

India needs to establish governance structures that address the unique challenges of a multilingual, multicultural democracy with significant digital divides if it is to develop reliable artificial intelligence systems within its diverse socioeconomic landscape. Emphasising responsible AI development and encouraging innovation, India's approach to artificial intelligence governance is best exemplified by the National Strategy for Artificial Intelligence and the most recent IndiaAI initiative, which is funded at 1.2 billion USD. Developing systems that can navigate India's complex social structures, language diversity, and varying degrees of digital literacy among urban and rural populations presents a challenge. Embedded prejudices reflecting centuries of social stratification, caste dynamics, and regional disparities must be addressed by Indian AI systems through careful calibration to prevent extending historical inequalities while serving 1.4 billion citizens across 22 official languages and hundreds of dialects. The governance structure must address critical questions: Should artificial intelligence systems maintain universal neutrality, which might overlook indigenous wisdom and local nuances, or incorporate traditional Indian knowledge systems and cultural contexts? Inspired by the Personal Data Protection Bill and the Digital India program, India's approach to data stewardship stresses data localisation and public involvement above more strictly market-driven solutions. While promoting indigenous innovations and initiatives like *Startup India* and *Atmanirbhar Bharat*, while remaining integrated with global AI ecosystems, the question that needs to be asked is whether AI benefits reach rural populations while building world-class urban tech hubs. Maintaining cultural sensitivity while achieving technical excellence strikes a balance between competing priorities. Establishing trustworthy artificial intelligence in India requires multidisciplinary cooperation, involving not only scientists and thinkers but also social anthropologists, linguists, and traditional knowledge keepers who are aware of India's cultural and civilisational context.

2.1 AI and Energy Demand in India: Powering Digital Transformation

Driven by the IndiaAI mission and Digital India projects, India's ambitious expansion of artificial intelligence poses hitherto unheard-of energy challenges in a nation already struggling with increasing electrical demand from 1.4 billion people and rapid industrialisation. While striving for renewable energy objectives of 500 GW by 2030, AI infrastructure is expected to account for 3-5% of India's total energy consumption by 2030, thereby stressing a power system that is still primarily dependent on coal (70% of electricity output). With firms testing liquid cooling, free air cooling during the winter months, and advanced evaporative cooling systems to manage the extreme heat that can exceed 45°C in certain areas, India's tropical climate necessitates innovative cooling solutions. The country's energy problem has sparked a debate over India's nuclear energy; the government intends to treble nuclear capacity to 22,480 MW by 2031 and investigate small modular reactors (SMRs) for distributed power generation near significant data centre hubs. While state governments compete to attract data centre investments by offering subsidised power rates and renewable energy incentives, policy initiatives such as the Green Data Centre Policy and the National Solar Mission are establishing frameworks for sustainable AI infrastructure. India's approach to energy for artificial intelligence must also consider the country's commitment to achieving net-zero emissions by 2070 and ensure that the benefits of AI reach rural areas, where energy access remains a challenge, thereby creating a complex equation of growth, sustainability, and equity.

2.2 Technology Diffusion and AI in India: Navigating the Digital Leapfrog

India's approach to AI diffusion offers a unique kind of technology leapfrogging, whereby a nation with significant infrastructure shortages concurrently seeks innovative AI applications across various sectors, from agriculture to space exploration. India is developing both basic digital systems and advanced AI applications concurrently. While metropolitan cities like Bengaluru and Hyderabad house world-class AI research centres and unicorn companies, rural areas still struggle with basic connectivity concerns, hence creating a digital divide that AI spread must overcome rather than exacerbate. With over 750 million smartphone users, AI applications are reaching citizens through vernacular language interfaces. These voice-based systems bypass literacy barriers and reasonably priced data plans, enabling farmers, small traders, and rural entrepreneurs to access sophisticated AI services deeply entwined with India's mobile-first approach. At the same time, the geopolitical dimension of AI diffusion places India in a strategic position as both a major consumer and producer of AI technologies. Ensuring that AI diffusion strengthens rather than replaces India's traditional knowledge systems and informal economy, which employs over 90% of the workforce, calls for careful policy design that promotes augmentation over automation, especially in labour-intensive sectors such as textiles, agriculture, and handicrafts, which form the backbone of rural livelihoods.

2.3 Data Governance in India: Balancing Sovereignty with Innovation in the AI Era

India's approach to data governance in the AI era reflects the nation's complex stance as both a significant data generator (producing over 20% of global data) and a rapidly growing economy seeking to utilise data for inclusive development while safeguarding citizen privacy and national security interests. The Digital Personal Data Protection Act 2023 is India's attempt to establish a uniquely Indian model of data governance that balances individual privacy rights with the state's developmental goals and the needs of a vibrant digital economy, including world tech giants and indigenous startups. India's approach emphasises "data empowerment," whereby individuals have rights over their data while allowing its use for national development, utilising concepts such as the Data Empowerment and Protection Architecture (DEPA) and Account Aggregator frameworks. This approach differs from the GDPR's focus on individual privacy and China's emphasis on state control. India's fragmentation challenge is both internal and external: while externally India has to negotiate compliance with global frameworks while preserving data sovereignty, internally, different states are developing their data policies. While ensuring that AI systems trained on this varied data serve all communities fairly rather than favouring data-rich urban populations, India's AI governance must address the particular difficulty of managing data across 28 states and 8 union territories, each with unique languages, cultures, and developmental needs. So far, the regulatory approach has emphasised sectoral governance, resulting in a mosaic of regulations that reflects India's federal structure. Whether this federated, sector-specific approach to data governance can provide the regulatory clarity and consistency needed for AI innovation while preserving the flexibility to address India's varied developmental challenges, all while ensuring that the benefits of data-driven innovation reach every citizen regardless of their economic level, geographic location, or digital literacy degree.

3. Conclusion

To conclude, India's case is fascinating with its multilingual and multicultural societal life. The history, politics, and economic activities differ across various regions, with millions of people intertwined and grounded in their legacies and cultures, which serve as foundational building blocks despite the diversity. The challenge for AI is to capture these first principles in an objective and nuanced manner. AI has immense potential in India at various levels; enhancing the productivity, improving economic activities, providing better and improved access to education and understanding of health challenges etc. An encouraging role for the market, complementing lucid and structured government policies, is the need of the hour for the spread and adoption of AI in India, particularly in such a diverse marketplace.

